

10/726,755**Patent****IBM Docket No. FIS920010385US2****REMARKS**

Claims 15 to 21 remain in the present application. Claims 15, 17 and 19 to 21 have been amended for which there is support in the specification, claims and drawings as originally filed.

Reconsideration of the Examiner's decisions and reexamination of the present application is respectfully requested.

Priority:

The statement regarding priority has been inserted. There are no other nonprovisional applications.

Specification:

The Abstract of the Disclosure has been revised to reflect the method of forming a multichip module.

The Title of the Invention has been revised to clearly indicate the invention to which the claims are directed.

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Claims 19 to 21 have been amended to reflect the correct dependency.

The §103 rejections:

Claims 15 to 21 have been rejected by the Examiner under 35 USC §103(a) as being unpatentable over Bureau et al. US Patent 5,262,351 (hereafter "Bureau") in view of Ahn et al. US Patent 6,424,034 (hereafter "Ahn").

The present invention is directed to a multichip module in which a thin film structure is attached to a frame. Semiconductor devices are attached to both sides of the thin film structure. The frame serves a dual purpose, namely, stiffening the structure and providing the connection to the next level of packaging. Accordingly, claim 1 has been amended to reflect this duality of purpose by reciting an additional step of "positioning an electrically insulating frame with respect to a first surface of the thin film structure so that the frame extends beyond a periphery of the thin film structure." That the frame is positioned to extend beyond the thin film structure enables the frame to be connected to the next level of packaging while having semiconductor devices on both sides of the thin film structure..

It is submitted that the combination of prior art references cited by the Examiner are insufficient for a prima facie case of obviousness.

Bureau teaches certain aspects of Applicants' invention such as attaching a frame to a thin film structure and joining semiconductor devices to one side of the thin film structure. However,

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Bureau does not teach "positioning an electrically insulating frame with respect to a first surface of the thin film structure so that the frame extends beyond a periphery of the thin film structure."

This is because the frame in Bureau is meant to enable the thin film structure to join with other like thin film structures such as in Figure 7 in Bureau. Alternatively, the frame in Bureau could be used "for electrical connections to the outside" (Bureau, col. 6, lines 1-2) although Bureau does not disclose how this is to be accomplished but it is assumed that the electrical connections would be directly underneath the frame as shown in Figures 5 to 7 of Bureau because the frame does not extend beyond the thin film structure. In either case, Bureau does not teach the limitation "positioning an electrically insulating frame with respect to a first surface of the thin film structure so that the frame extends beyond a periphery of the thin film structure" recited in claim 15.

Nor does Bureau teach the limitation "attaching at least one semiconductor device to a second surface of the thin film structure". The Examiner has acknowledged this.

Ahn also does not teach the step of "positioning an electrically insulating frame with respect to a first surface of the thin film structure so that the frame extends beyond a periphery of the thin film structure" or "attaching at least one semiconductor device to a second surface of the thin film structure" since Ahn is devoid of any teaching with respect to a frame or a thin film structure. Ahn is concerned with mounting chips on both sides of a silicon interposer substrate (col. 3, line 49). The silicon interposer substrate is not equivalent to a thin film structure as is well known to one skilled in the art. Ahn further teaches that this silicon interposer substrate has a thickness of 50 mils (col. 4, line 59) which is many times greater than the thickness of 15 to 250 microns of Applicants' thin film structure. Therefore, Ahn is believed to be at least nonanalogous art with respect to Applicants' invention and, in any event, fails to teach the foregoing aspects of Applicants' invention.

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In view of the preceding remarks, it is submitted that as Ahn cannot supply the deficiencies of Bureau, the combination of Bureau and Ahn cannot render obvious Applicants' claims 15 to 21.

Inasmuch as claims 16 to 21 depend from claim 15, and since claim 15 is believed to be patentable, then claims 16 to 21 should be patentable as well.

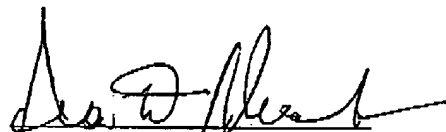
In addition, it is submitted that claim 17 is independently patentable as well. Claim 17 recites "the step of applying a stiffening material only between the frame and one of the at least one semiconductor devices".

With respect to claim 17, the Examiner points to col. 6, lines 9-17 of Bureau. This portion of Bureau, however, refers to the forming of the frame per se and does not teach or suggest anything with respect to "the step of applying a stiffening material only between the frame and one of the at least one semiconductor devices". Accordingly, the cited prior art cannot render obvious Applicants' claim 17.

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In view of all of the preceding remarks, it is submitted that all of claims 15 to 21 are in condition for allowance. If the Examiner finds this application deficient in any respect, the Examiner is invited to telephone the undersigned at the Examiner's earliest convenience to resolve such deficiency.

Respectfully Submitted,
Ajay P. Giri, et al.



Ira D. Blecker Reg. No. 29,894
Telephone: (845) 894-2580

International Business Machines Corporation
Zip 482
2070 Route 52
Hopewell Junction, NY 12533
Fax No. (845) 892-6363